



KERALA STATE BIODIVERSITY BOARD

EKAA

Environment. Kerala. Awareness. Action
Monthly - Newsletter of the Kerala State Biodiversity Board

October 2021
Volume - 1, Issue - 10

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Chairman's Notes

Dr. C. George Thomas, Chairman

The International Day for Disaster Risk Reduction

The United Nations General Assembly proposed to observe an international day for Disaster Risk Reduction to promote a global culture of risk-awareness and disaster reduction. The day is celebrated on 13th October every year. This year (2021), the theme is “International cooperation for developing countries to reduce their disaster risk and disaster losses”.

In 2015, at the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan, the world nations were reminded that most disasters hit at the local level creating havoc in society and economy. Unexpected occurrence of disasters displaces a huge number of people every year and has a negative impact on efforts for sustainable development. Many disasters are aggravated by climate change and related effects.

Often, the impact of disasters would be high on low- and middle-income countries, particularly in terms of mortality, people injured, displaced and homeless, economic losses, and damages to critical infrastructure. For the ambitious objective of eradication of poverty and hunger from the world, substantial investments in disaster risk reduction are needed. In the face of extreme weather events and other natural and human-made hazards, to boost disaster resilience, international cooperation for funding and capacity building is essential.

Kerala State Biodiversity Strategies & Action Plan (SBSAP)

Kerala State Biodiversity Board along with Government of India (GoI), Global Environment Facility (GEF) and United Nations Development Project (UNDP) initiated State Biodiversity Strategies and Action Plan. The project maps programmes/ activities by various state level departments and agencies contributing biodiversity conservation, identifying key issues and prioritising activities for the next 10 years.



The major sectors covered include Forest and Biodiversity, Agriculture and Animal Husbandry, Coastal and Inland biodiversity, Environment and Climate change, Education, Local Governance and Tribal Development.

Vision: To protect biodiversity in its own right and ensuring the enrichment and sustainable use of bioresources for the development of Kerala.

Mission: To conserve our rich biodiversity through and action plans policy guidelines, legislation for conservation of biodiversity and action plans in a participatory mode for the welfare of all the living beings in our state.

The SBSAP is being formulated by a consultative process involving experts in the field, government departments, research institutions, NGOs, tribal communities and other stakeholders. A Resource Mobilization Strategy for Implementation of SBSAP is also being undertaken with the support of

Prof. Rita Pandey, International Public Policy Specialist, (Biodiversity, Climate Change and Sustainable strategies Development) Gurugram, India. It is also envisaged to develop a pilot model of local biodiversity development and action plan at

Athirapilly gramapanchayat. An overarching strategy and plan for promoting sustainability, a road map to mainstream the biodiversity concept in development planning and implement them with people's participation will evolve as a result of the project.

Eminent Personality

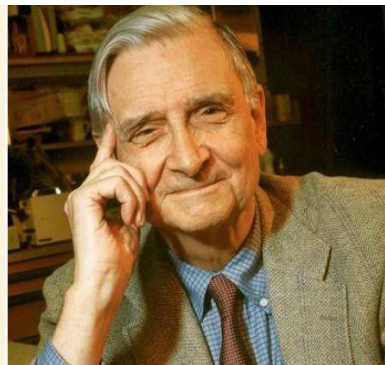
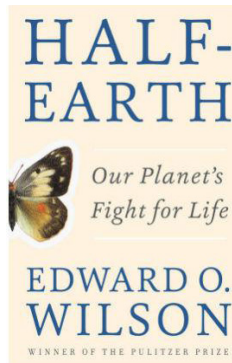
Dr. Rajendra Kumar Bhandari is the recipient of the Subhash Chandra Bose Aapda Prabandhan Puraskar-2021. Annually this award recognizes and honours the invaluable contribution and selfless services offered by Indian citizens and organizations associated with Disaster Management. The award constitutes a cash prize of Rs. 51 lakh and a certificate for institutions and Rs. 5 lakh and a certificate for individuals. Dr. Bhandari pioneers, scientific studies on geo hazards in general and landslides particularly in India. He established India's first laboratory on landslide studies at CSIR-Central Building Research Institute (CBRI) in Roorkee. He also conducted studies on disasters in India, deployed latest technologies, in-depth investigations, instrumentation, monitoring and risk analysis for Early Warning against Landslides. These demonstrated organic connection between scientific investigations and engineering interventions for disaster resilient human habitat and highways. His other contributions are the first global

example of permanently fixing a major landslide by deep mountain drainage through directional drilling; the first globally accepted explanation of undrained loading triggered landslides and the first Landslide Hazard Atlas of India, published by Building Materials and Technology Promotion Council (BMTPC). His advocacy for the National Disaster Knowledge Network became part of the recommendations of the High Powered Committee in October 2001. He has also written books for popularization of disaster education for students.



Green Reads

EO Wilson known as “the father of biodiversity” gives a warning on the need to conserve the Earth's biodiversity in his book Half-Earth. The American naturalist is concerned about why humanity is engrossed in activities that wipes out the majority of the species of animals and plants from our planet. Consider the problem of invasive species that makes a negative impact on agriculture. Our first line of defense would be promoting the existence of its natural enemy for our cause until the invasive species gets eradicated. Nevertheless what we earn in the process may be a lack of natural enemies for a new invader species in near future! The solution he



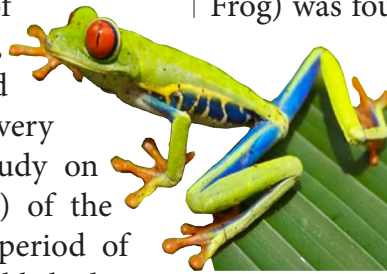
suggests is allocating more land area and water bodies as reserves for protecting wild plants and animals until it covers half the globe. He argues that such a project would be a reasonable chance for saving about 80%

of species still alive. Today, the land area protected as natural habitats by governments and agencies, which constitute about 15% of total land area is indeed a good start.

Author : EO Wilson, Publisher: Liveright, Language: English, Pages: 272, Date of publication: 8 April 2016
Rate: Rs. 1836, Source : Amazon

Species Discoveries

Five new species of shrub frogs have been discovered from the Western Ghats by a team of researchers from University of Delhi, Kerala Forest Research Institute and University of Minnesota. The discovery is part of a long comprehensive study on the Shrub frogs (genus *Raorchestes*) of the Western Ghats, carried out over a period of nearly 10 years. The findings were published in a scientific article titled "An integrative approach to infer systematic relationships and define species groups in the shrub frog (genus *Raorchestes*), with description of five new species from the Western Ghats, India". The authors are Sonali Garg, Robin Suyesh, Sandeep Das, Mark A Bee, and Prof S D Biju and it is published in the International journal PeerJ. (<https://doi.org/10.7717/peerj.10791>)



Raorchestes kakkayamensis (Kakkayam Shrub Frog) was found only in the vicinity of Kakkayam dam in the southern state. The third species *Raorchestes keirasabinae* (Keira's Shrub Frog) was found in Agasthyamalai and Anamalai hills in the southern Western Ghats. It is a unique tree frog inhabiting the highest canopy layers. The fourth species *Raorchestes sanjappai* (Sanjappa's Shrub Frog), a beautiful green shrub frog, was discovered from the Wayanad region of northern Kerala. The species is named after Dr. M Sanjappa, a renowned Indian Botanist and former Director of the Botanical Survey of India, reported PTI. The fifth species *Raorchestes vellikkannan* (Silver-eyed Shrub Frog) was discovered in the Siruvani hills and adjoining regions of the Silent Valley National Park. The name is derived from Malayalam "velli" (meaning silver) and "kannu" (meaning eye), referring to its distinct silver eye colour.

One of the new species called *Raorchestes drutaahu* (Fast-calling Shrub Frog) was discovered from Kadalar in Idukki district and Siruvani in Palakkad district of Kerala. Another one named

A new species of Riccia, *R. keralensis* sp. nov. of the subgenus Riccia of section Riccia and group Squamatae is described from the disturbed low land areas of Kozhikode and Malappuram districts of Kerala, India. *Riccia keralensis* resembles species in the group Squamatae such as *R. billardieri* Mont & Nees., *R. gangetica* Ahmad ex L.Soderstr. and *R. treubiana* Steph. in external appearance and internal structure of the thallus, but distinctly differs in the spores which have a distinct triradiate mark in almost all spores, prominent wing and fewer areolae across the diameter. Manju N., Chandini V.K.,

Singh S.K., and Rajesh K.P. 2021., "A new species of Riccia (Ricciaceae: Marchantiophyta) from the Western Ghats of Kerala The Bryologist 124(3), 376-384. <https://doi.org/10.1639/0007-2745-124.3.376>



Biodiversity News

KSBB had released two books namely "Insights in to biodiversity: Immuno boosting Wild Edible Plants" and "Insights in to biodiversity: Immuno boosting Wild Medicinal Plants:" during the 55th KSBB Board meeting held at Layam Hall- Secretariat Annexue-II, Thiruvananthapuram. These books mainly focus on the importance of underutilized wild edible plants and wild medicinal plants for the betterment of the human community against pandemic diseases including Covid-19. These books list of major traditional medicinal plants and wild edible plants being used by the tribal communities of Kerala having significant immuno boosting effects.



Neelakurinji blooms in lower hills of idukki

Neelakurinji (*Strobilanthes kunthiana*) which blooms once in 12 years, is considered the pride of Nilgiri hills (Munnar). Normally Neelakurinji flowers at an altitude of 1200 meters or above. However the flowering of the plants in Chakkikavu hills at Kudayathoor GP are at 800-900 meters altitude. Experts said it was from the Munnar hills that Neelakurinji spread to Chakkikavu hills and are seen in these areas for the past 30-35 years. The seeds are disseminated by birds. A massive flowering is expected in the Chakkikavu hills next year. Following a complaint received that visitors are destroying neelakurinji plants in the area, a team from KSBB visited the site with panchayat members and BMC members. More than a hundred Neelakurinji plants can be seen here of which only 4 or 5 plants bear flowers. The BMC prepares a plan for the protection of Neelakurinji plants. Based on



this, a notice board was set up in the area stating that destruction of neelakurinji plants and flowers is punishable. In order to formulate a conservation plan, a letter was submitted to the revenue department for a detailed survey sketch of the area. The Panchayat has informed that steps can be taken to declare the area as a local biodiversity heritage site.

Aswathy. V. S,

District coordinator KSBB, Idukki



Sustainable food forest farming

The concept of Sustainable food forest farming was developed by two enthusiastic young farmers viz. Reji Joseph and Sooryaprakash of Sreekrishnapuram Grama Panchayath in Palakkad district. They zeroed in on this farming method in 2015 motivated by the agricultural practices of Subash Palekar (Natural farming), Fukuoka (One straw revolution), S.A.Dabholkar (Plenty for all), Bill Mollison (Permaculture) and many other natural farming groups.

In this farming method, scores of fruit trees are planted at a spacing of 10x10 feet, in pits of 3x3x3 feet size, after adding 3 cubic feet of enriched compost in each pit. Subsequently, around the plants, seeds of annuals like green gram, cow pea, black gram, sesame, mustard, fenugreek, corn, pigeon pea, okra, chilly, brinjal, etc. are dibbled. One marigold seedling planted in each pit, to reduce pest attack. The entire plot is then soft tilled and seeds of

different species of cereals (about 12 species), pulses (about 12 species), oil seeds (about 5 species), spices (about 9 species) and green manure crops (about 4 species) are also sown. (The total seed weight required is nearly 130kg/acre). Such varieties of species are ingrained for getting interim returns, improving soil fertility, controlling weeds, providing mulching for soil moisture conservation, fixing nitrogen, restoring ecosystems and above all sourcing diverse and safe food for nutritional security without compromising the environment. Trees used for planting are classified into 4 groups according to height, canopy size and ability for sunlight harvesting and spacing in the farm. They are mango, jack, coconut, breadfruit, malabar plum, star fruit, gooseberry, rose apple, sapota, rambutan, milk fruit, guava, lime, custard apple, peanut butter, baraba, west indian cherry, sweet orange, plum, miracle fruit, citron lime, papaya, banana,

Babu Bonaventure

District Coordinator, KSBB, Palakkad



and medicinal plants KSBB allotted Rs. 5 lakhs for conservations oriented programs and Sreekrishnapuram Grama Panchayath identified 120 cents of area at VTB College, Sreekrishnapuram for serving the purpose. The NSS and Nature Club teams of the College guided by the Program Officer and the Panchayath authorities joined hands together. A total

of 454 fruit trees were planted within a week with the active support and technical guidance of Reji Joseph, Sooryaprakash and other team members. Afforestation along with food forest farming will be the most suited initiative that helps in ecosystem restoration, creation of forest cover and amelioration of climate change.

Innovative models of Access and Benefit Sharing

Access and benefit sharing by research community/ local people/ other stakeholders exists widely in India, but remains highly unaware among the public. Two such diverse models of benefit sharing are one by Valagro Biosciences Pvt Ltd involved in development of plant nutrition products and FairWild certification scheme based at Pune. Valagro Bioscience Ltd. located in Hyderabad with its headquarters in Atessa (Italy) won the India Biodiversity Awards of 2021 for replicable models of ABS. The company with prior approval from eleven Biodiversity Management Committees (BMC) of Telangana region and NBA as per the provisions of Biodiversity Act, 2002 accessed phosphate solubilising bacteria from soil for both research and commercial purposes. The company has developed five microbial products for sustainable agriculture which have been launched commercially in India under “Valagro Future Farming”. The benefits arising out of the access to the biological resources were distributed to these eleven BMCs through Telangana State Biodiversity Board, thus ensuring that results of research were paid back to the local community from where bioresources are accessed.

Applied Environment Research Foundation (AERF), a Pune based NGO, undertook the initiative to implement the FairWild certification scheme for promotion of sustainable collection of non-timber forest produce from community managed forests in BhimaShankar Wildlife Sanctuary (BWLS) in Pune district and Sangameshwar in Ratnagiri district. The key stakeholders involved in this initiative were the respective BMCs, local community, wholesalers, exporters and retailers of certified bio-resources.



AERF initiated the process of identifying potential users of certified trees - Pukka Herbs, a UK based entity involved in the manufacturing of ayurvedic formulations made from certified bio-resources. Nature Connect India Pvt. Ltd acted as a domestic buyer that purchased from the collectors (provider) and sold the certified produce to Pukka Herbs. The BMCs were trained by AERF in following the standards required for FairWild certification. The BMCs then mobilised the communities in spreading awareness about the certification procedure, conservation of biodiversity, and sustainable utilization of certified fruits of Terminalia bellirica.

The BMCs were able to demand a premium price for the collected fruits. Involvement of women from the community in processing of fruits provided enhanced livelihood to the local community. Annual income increased by 10-15% for the households engaged in the collection and trade. The certified trees were conserved and a premium paid by the user to the BMC was distributed among the benefit claimers. Every year there was a 20% increase in certified trees in both Sangameshwar and BWLS as logging of trees was prevented and conservation efforts promoted since the initiative enhanced the livelihood opportunities of the community.

Such innovative methods wherein the BMC plays a major role in community mobilisation for conservation of biodiversity and improving livelihoods of communities need to be promoted. In Kerala it would be beneficial in exploring such informal models of benefit sharing which could be useful for BMC's when devising means of sharing benefits with communities.

Dr. Preetha.N

Senior Research Officer, KSBB



Biodiversity Management Committees (BMC's) meetings

Chirayinkeezhu (Thiruvananthapuram)

A meeting was conducted on 01/10/2021 at Chirayinkeezhu Panchayath conference hall to discuss the MoU submission of ABS funded project. BMC President, Secretary, BMC members, Ayurveda doctor, Fisheries department official, Haritha Keralam mission representative of the area and KSBB district coordinator participated in the meeting. District coordinator KSBB has given a brief description about the terms and conditions of the sanctioned project, roles and responsibilities of BMC in the implementation of the project and other activities of BMC in Biodiversity conservation. A visit to the proposed site by the BMC members was also conducted. The BMC decided to prepare and fix the BMC name board without delay.



Arakkulam (Idukki)

A BMC meeting of Arakkulam Grama Panchayat was held on October 1st, at the GTUPS Pathipally. The meeting was attended by BMC members and PTA members. Discussions were held on the operation of the Biodiversity Park allotted to Arakkulam BMC by the State Biodiversity Board.



Perumkadavila (Thiruvananthapuram)

A BMC meeting was conducted on 06/10/2021 at Perumkadavila Panchayath. Model BMC project completion was the main agenda. The BMC president, secretary, convenor and members attended the meeting. BMC has decided to complete the pending components in a time bound manner. The BMC submitted a request to the irrigation department for getting consent for the Thrippalavoor biopark site. Management of the already established local mango tree conservatory was one of the main decisions taken during the meeting. As a result of this, later the

weeds in the mango conservatory were removed and manuring also done. In order to start the rice conservation component, BMC decided to organise a meeting of rice farmers in the locality.

Pullampara (Thiruvananthapuram)

Pullampara BMC meeting was conducted on 25/10/2021. BMC President, secretary, BMC members and District coordinator KSBB participated. Decisions on the time bound implementation of ABS funded project components such as Medicinal plant garden, Butterfly Park and Tuber crop conservatory was taken up. Timeframe for the completion of

the work and draft budget for each component also prepared.

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